

# -Filter for Detecting Aftershocks of the 2014 MORMORI-ILAM Earthquake

Thursday, 22 June 2023 09:34 (1 minute)

The first step in most seismological studies is detecting seismic events. Due to attenuation law, the interstation spacing of seismic networks plays a fundamental role in the capability of phase detection, so the inappropriate density of seismic stations reduces the detection capability. The immediate solution to this problem is to increase the density of stations. But, this is too expensive to build and maintain. The cheaper solution is to improve the processing techniques to get more from the stations we have. The waveform cross-correlation technique (Matched-Filter) is a signal processing approach that is a powerful tool for detecting signals with a lower signal to noise ratio in the case of known sources. In this study, Matched-filter was performed on 95 days of continuous data with 13 temporary seismic stations installed by the IIEES to monitor the aftershock sequence of the August 2014 earthquake on MORMORI-ILAM with a local magnitude of 6. The primary catalog consists of 1105 aftershocks caught by visual and conventional methods and 838 of them were selected as templates. The Matched-filter technique detected 3575 aftershocks (4.27 times of reference). The detections were classified into some groups from the reliability point of view and correctness.

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## Promotional text

This study uses cross-correlation techniques to improve the detection performance of a seismic network in the field of aftershock studies. Using this technique makes the ability to detect buried seismic phases under ambient noise that are unable to see by an expert or sta/lta.

## Oral preference format

in-person

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**Session Classification:** Lightning talks: P3.5, P5.1

**Track Classification:** Theme 3. Monitoring and On-Site Inspection Technologies and Techniques: T3.5  
Analysis of Seismic, Hydroacoustic and Infrasound Monitoring Data